

IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA  
CHARLESTON DIVISION

B.P.J. by her next friend and mother, HEATHER JACKSON,

*Plaintiff,*

v.

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, DORA STUTLER in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

*Defendants,*

and

LAINY ARMISTEAD,

*Defendant-Intervenor.*

Civil Action No. 2:21-cv-00316

Hon. Joseph R. Goodwin

**PLAINTIFF'S REPLY MEMORANDUM OF LAW IN SUPPORT OF MOTION  
TO EXCLUDE THE EXPERT TESTIMONY OF GREGORY A. BROWN**

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Plaintiff B.P.J. respectfully submits this reply memorandum of law in support of her motion to exclude the proffered expert testimony of Gregory Brown, Ph.D., FACSM from consideration at summary judgment or trial.

### **INTRODUCTION**

In her motion to exclude the proffered expert testimony of Dr. Brown, (Dkt. No. 316 (Brown *Daubert* Mot.)), B.P.J. explained that Dr. Brown’s expert report is an advocacy piece that abandons nuance and asserts sweeping and unequivocal opinions that are not grounded in reliable data and do not reflect the application of reliable principles or methods. As this Court has recognized, “[a] scientist might well pick data from many different sources to serve as circumstantial evidence for a particular hypothesis, but a reliable expert would not ignore contrary data, misstate the findings of others, make sweeping statements without support, and cite papers that do not provide the support asserted.” *In re C. R. Bard, Inc., Pelvic Repair Sys. Prod. Liab. Litig.*, No. MDL 2187, 2018 WL 4220622, at \*4 (S.D. W.Va. Sept. 5, 2018) (Goodwin, J.) (quoting *Abarca v. Franklin Cnty. Water Dist.*, 761 F. Supp. 2d 1007, 1066 n.60 (E.D. Ca. 2011)).

Although styled as an opposition, Defendants’ response to B.P.J.’s motion is essentially a confession of error. On point after point, Defendants withdraw Dr. Brown’s hyperbolic statements and replace them with more modest claims.<sup>1</sup> But Defendants cannot rehabilitate Dr. Brown’s

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<sup>1</sup> Defendants also note that Dr. Brown recently published data about the performance of prepubertal youth on the editor-reviewed blog for the Physiology Educators Community of Practice, and argue that the publication shows that Dr. Brown’s opinions are “deemed reliable by the scientific community.” (Dkt. No. 338 (Brown Opp.) at 21 (citing Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 69).) Far from supporting the reliability of Dr. Brown’s expert report in this case, Dr. Brown’s published blog (which is not a peer-reviewed publication and still contains major flaws) only highlights the ways that Dr. Brown’s expert report falls far below professional standards, as discussed further below.

testimony by arguing that some hypothetical expert could have conducted a reliable review of all the available information and come to a significantly more modest conclusion. “[C]ourts must look to *the entire process* that produced an opinion to determine whether the expert’s work satisfies *Daubert’s* fundamental command.” *In re Lipitor (Atorvastatin Calcium) Mktg., Sales Pracs. & Prod. Liab. Litig. (No II) MDL 2502*, 892 F.3d 624, 637–38 (4th Cir. 2018) (emphasis added). “The reliability analysis applies to all aspects of an expert’s testimony: the methodology, the facts underlying the expert’s opinion, the link between the facts and the conclusion, et alia.” *Knight v. Kirby Inland Marine Inc.*, 482 F.3d 347, 355 (5th Cir. 2007) (quotation marks omitted). The question is whether the particular expert report presented *in this case* is “based on sufficient facts or data,” “is the product of reliable principles and methods,” and “reliably applied the principles and methods to the facts of the case.” Fed. R. Evid. 702. Dr. Brown’s testimony fails that test.

**I. Dr. Brown’s Opinions Regarding Prepubertal Children And The Alleged Athletic Advantages Of Transgender Girls Who Receive Puberty-Delaying Medication Should Be Excluded.**

Dr. Brown opined in his expert report’s summary of opinions that “male children[] have an advantage over equally aged, gifted, and trained . . . female children in almost all athletic events” and that “[b]iological male physiology is the basis for the performance advantage that . . . male children have over . . . female children in almost all athletic events.” (Dkt. No. 289-30 (Brown Rep.) at 4, 56.) Dr. Brown further stated that “these performance advantages for . . . prepubertal male children, are inherent to the biological differences between the sexes.” (*Id.* ¶ 9.) And Dr. Brown further claimed that “[b]iological male physiology” provides a “preexisting advantage” for transgender girls like B.P.J. who never undergo endogenous puberty as a result of receiving puberty-delaying medication. (*Id.* at 4, 56.)

Defendants do not—and cannot—defend the reliability of those hyperbolic claims. Instead, Defendants replace Dr. Brown’s unequivocal claims with the more modest argument that “sex-based differences in athletic performance emerge before puberty,” that “there is a biological component to those differences,” and that no published research has analyzed the athletic performance of transgender girls and women who receive puberty-delaying medication. (Dkt. No. 338 (Brown Opp.) at 1.) These critical concessions only underscore the unreliability of Dr. Brown’s opinions. Instead of surveying all the relevant evidence and drawing reasonable inferences from that data, Dr. Brown searched only for evidence supporting his predetermined thesis, and then made unsupported, illogical leaps based on that incomplete data. Even worse, Dr. Brown failed to acknowledge contrary data contained in his earlier reports and in the very articles he claimed to rely upon. Defendants cannot paper over these fatal mistakes by attempting after the fact to address that evidence and soften Dr. Brown’s opinions. Because Dr. Brown did not base his opinions in this case “on sufficient facts or data” and did not “reliably apply the principles and methods to the facts of the case” his testimony is inadmissible. Fed. R. Evid. 702.

**A. Dr. Brown’s Assertions Regarding Prepubertal Physiological Differences Are Unreliable.**

Dr. Brown’s report asserts that “much data and multiple studies show that significant physiological differences” exist between prepubertal boys and prepubertal girls. (Dkt. No. 289-30 (Brown Rep.) ¶ 72.) As his primary support, he states in his report that “McManus and Armstrong (2011) reviewed the differences between boys and girls regarding bone density, body composition, cardiovascular function, metabolic function, and other physiologic factors that can influence athletic performance.” (*Id.* ¶ 71.) But as B.P.J. noted in her motion to exclude—and as Defendants now effectively concede—McManus and Armstrong did not actually find “significant differences”

with respect to any of these factors, and for many of the factors found no difference at all. (Dkt. No. 316 (Brown *Daubert* Mot.) at 12.)

In response, Defendants attempt to rehabilitate Dr. Brown’s testimony by recharacterizing it. Defendants state that Dr. Brown merely claimed that “prepubertal boys and girls are different in *some* areas that contribute to athletic performance” and that the citation to McManus “was proper” because “McManus found measurable differences between prepubertal boys and girls in lean body mass, fat mass, percent body fat, and peak oxygen uptake.” (Dkt. No. 338 (Brown Opp.) at 13–14.) Defendants do not attempt to explain why Dr. Brown referred to “bone density” when describing the findings in McManus’s article.

Defendants’ response ignores the fundamental problem with cherry-picking. The vice of cherry-picking is not that a particular citation is false. It is that cherry-picking “produces a misleadingly favorable result by looking only to ‘good’ outcomes.” *EEOC v. Freeman*, 778 F.3d 463, 469–70 (4th Cir. 2015) (Agee, J., concurring). Dr. Brown used the McManus article to bolster his unsupportable claim that “much data and multiple studies show that significant physiological differences” exist between prepubertal boys and prepubertal girls, (Dkt. No. 289-30 (Brown Rep.) ¶ 72), and that these differences are “the basis for the performance advantage that . . . male children have over . . . female children in almost all athletic events,” (*id.* at 4, 56). Had Dr. Brown acknowledged what his counsel acknowledge—that before puberty there are merely some “measurable differences” in “*some* areas that contribute to athletic performance” in some circumstances—then that acknowledgment would have undermined the plausibility of his

assertion that those differences are “the basis” for a broad performance advantage “in almost all athletic events.”<sup>2</sup>

Defendants engage in a similar attempt to rewrite Dr. Brown’s testimony about Staiano and Katzmarzyk (2012). As discussed in B.P.J.’s motion to exclude, Dr. Brown’s report gives the false impression that sex differences in total body fat were found in all twenty-two of the peer-reviewed publications discussed in the article. (*See* Dkt. No. 316 (Brown *Daubert* Mot.) at 12–13.) Defendants now acknowledge that several of the twenty-two studies did not find any differences in total body fat, and say that “experts do not need unanimity to reach a reliable conclusion; rather, they are to look to the ‘great weight of the evidence.’” (Dkt. No. 338 (Brown Opp.) at 14.)

Experts may certainly base opinions on “the great weight of the evidence” but, despite Defendants’ assertion to the contrary, that is not “exactly what Dr. Brown did.” (*Id.*) Dr. Brown did not acknowledge conflicting findings or the existence of any contrary evidence at all. An expert cannot base an opinion on the weight of the evidence if the expert looks at only one side of the scale. “[E]ven assuming” that Dr. Brown’s citations are accurate, his “method of selecting them is too unreliable” to satisfy Rule 702. *Yates v. Ford Motor Co.*, 113 F. Supp. 3d 841, 858–59 (E.D.N.C. 2015) (excluding expert testimony because plaintiff “failed to show that [expert] engaged in a reliable process to select” the studies he reviewed).

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<sup>2</sup> Significantly, Dr. Brown’s recent professional blog—touted by Defendants to show that Dr. Brown’s opinions meet professional standards—does not include a discussion of the McManus and Armstrong article. (Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 69–75.)



**B. Dr. Brown's Descriptions Of The Athletic Performance Of Prepubertal Children Are Unreliable.**

As discussed in B.P.J.'s motion to exclude, Dr. Brown purported to provide an expert opinion on the comparable athletic performance of prepubertal boys and girls while ignoring two of the most significant articles in the field. (Dkt. No. 316 (Brown *Daubert* Mot.) at 9 n.1, 15–16.) Studies by Tønnessen published in 2015 and Handelsmann in 2017 found that average sex-based differences in age-grade competitive sports were between 0-6% depending on the sport and both studies characterized those differences as minimal. Even though Dr. Brown had quoted those findings in a previous version of his expert report, he left them out of his expert report in this case and instead relied on physical fitness surveys and a single year's worth of running data to provide a wildly inflated impression of the degree of difference between cisgender boys and cisgender girls before puberty.

Defendants attempt to divert attention from these egregious omissions by characterizing the issue as a disagreement over whether the 0-6% performance differences in Tønnessen 2015 and Handelsmann 2017 should properly be characterized as “minimal.” (Dkt. No. 338 (Brown Opp.) at 16.) If Dr. Brown had properly cited to the data in the Tønnessen and Handelsmann studies and expressed an opinion that 0-6% performance differences should be considered significant, B.P.J. would not have moved to exclude that testimony. But that is not what Dr. Brown did. He ignored the Tønnessen and Handelsmann studies on this point and instead cited only to physical

fitness surveys and his own data from a single year to provide an artificially higher percentage that, according to Defendants, are “sometimes well into double or even triple digits.” (*Id.*)<sup>3</sup>

B.P.J. has already explained at length why physical fitness surveys of the population at large cannot measure average differences in performance between equally aged, gifted, and trained cisgender boys and cisgender girls before puberty. (Dkt. No. 316 (Brown *Daubert* Mot.) at 14.) Because these epidemiological studies do not compare athletes with athletes, there is no reliable basis for Dr. Brown to attribute those differences among the general population to innate biology instead of to social factors such as greater societal encouragement of athleticism in boys and greater opportunities for boys to play sports. Defendants respond by saying that studies of physical fitness surveys were “peer reviewed.” (Dkt. No. 338 (Brown Opp.) at 16.) But that does not change the fact that the studies are designed to measure average physical fitness differences in the population at large, not average differences in athletic performance for athletes.

B.P.J. has also already pointed out the anomalies in Dr. Brown’s single year’s worth of track-and-field data, which wildly fluctuate from reflecting percentage differences in the low single-digits for 7–8-year-olds, spike to double digits for 9–10-year-olds, and then return to single-digits for 11–12-year-olds. (Dkt. No. 316 (Brown *Daubert* Mot.) at 15.) Neither Dr. Brown nor Defendants provide any explanation—whether based on biology or any other factor—for why there would be a sudden spike in performance advantage for 9–10-year-old cisgender boys that

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<sup>3</sup> In contrast to his selective citations in his expert report, Dr. Brown’s recent blog post acknowledges that “[a] 2012 report from the CDC indicated there were no differences between 6–11-year-old boys and girls in performance on physical fitness tests,” that “[m]any sports leagues for pre-pubertal children are not separated by sex since the focus is developing basic sports skills rather than competition, and that Handelsmann has “stated that there are no differences in athletic performance between boys and girls prior to the onset of puberty.” (Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 69 (footnotes omitted) (typos corrected).)

then evaporates for 11–12-year-olds. The blip in the data most likely reflects anomalies in the data for that particular year. By contrast, the data from Tønnessen reflects sporting records going back to 1975, and data from Handelsmann reflects sporting records going back to 1981. Significantly, when Dr. Brown looked at all-time racing records, (*see* Dkt. No. 289-30 (Brown Rep.) ¶ 23), that data showed average performance differences of under 7%, which is in line with the findings of Tønnessen and Handelsmann—not the “double or even triple digits” in percentage differences claimed by Defendants, (Dkt. No. 338 (Brown Opp.) at 16).<sup>4</sup>

Defendants assert that Dr. Brown’s opinions are “deemed reliable by the scientific community” because they were recently published in an editor-reviewed professional blog. (Dkt. No. 338 (Brown Opp.) at 21) (citing (Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 69).<sup>5</sup> But the blog post—unlike Dr. Brown’s expert report—does not rely on the single-year’s worth of anomalous data. Instead, the blog post analyzes three years’ worth of data (from 2019 through 2021) and reports average differences in prepubertal running in the mid-to-low single digits. *See* (Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 70 (stating that “across all events 7-8-year-old boys were  $4.4 \pm 1.9\%$  faster than girls, and 9-10-year-old boys were  $5.4 \pm 1.8\%$  faster than girls) (typos corrected).) The blog also analyzes all-time youth records from Track & Field USA and

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<sup>4</sup> Despite Defendants’ claim to the contrary, it is not B.P.J.’s responsibility to provide an expert statistician to explain why Dr. Brown’s methodology is unreliable. (Dkt. No. 338 (Brown Opp.) at 18 n.25.) Defendants bear the burden of establishing reliability, and a single-year’s data set with such obvious anomalies is plainly inadequate.

<sup>5</sup> The review process for the blog submissions described by Dr. Brown is not, in fact, “peer review[.]” (Dkt. No. 338 (Brown Opp.) at 18.) According to Dr. Brown, once an author submits a proposed blog post, “the editor reviews it, someone else associated also reviews it prior to being put up on the web.” (Dkt. No. 289-31 (Brown Dep. Tr.) at 162:25–163:1.) What Dr. Brown describes is editorial review, not peer review from independent external reviewers.

reports prepubertal differences in running in the mid-to-low single digit percentages. (*See id.*) And the blog post also acknowledges that youth records for USA Swimming show that prepubertal girls outperformed prepubertal boys in 4 out of 23 events. (*See id.*) Instead of supporting the reliability of Dr. Brown’s reliance on a single-years’ worth of anomalous data, the blog post shows that Dr. Brown applied a methodology in this case that falls below the standards that apply in his professional field—even for a relatively informal, non-peer-reviewed blog post.<sup>6</sup>

**C. Dr. Brown’s Assertions That Prepubertal Boys Have Athletic Advantages Due To Innate Physiology Are Unreliable.**

In their response to B.P.J.’s motion to exclude, Defendants abandon Dr. Brown’s indefensible assertion that “[b]iological male physiology is the basis for the performance advantage that . . . male children have over . . . female children in almost all athletic events.” (Dkt. No. 289-30 (Brown Rep.) at 4, 56.) Instead of trying to defend that unequivocal claim, Defendants now make the more modest argument that “sex-based differences in athletic performance emerge before puberty” and that “there is a biological component to those differences.” (Dkt. No. 338 (Brown Opp.) at 1.) These concessions are critical because they undermine the basis for Dr. Brown’s assumption that transgender girls who receive puberty-delaying medication will, on average, have “preexisting” biological advantages over cisgender girls by virtue of having a male sex assigned at birth.

Yet, even with these concessions, Defendants continue to defend a series of inherently unreliable inferences. Defendants state that Dr. Brown inferred that prepubertal differences in

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<sup>6</sup> In drawing contrasts between Dr. Brown’s expert report and his blog post, B.P.J. does not concede that the views expressed in the blog post are themselves sufficiently reliable to be admissible under Rule 702. The contrast merely highlights the severity of the deficiencies with Dr. Brown’s report.

athletic performance are based on biology because those differences also exist in Denmark, which according to Dr. Brown is a more egalitarian society than the United States. (*See* Dkt. No. 338 (Brown Opp.) at 22; Dkt. No. 289-30 (Brown Rep.) ¶ 107.) Dr. Brown has no expert qualifications in sociology and does not purport to have conducted any analysis into whether Denmark is different than the United States with respect to encouraging athleticism in young girls or providing them with athletic opportunities on par with those provided to young boys.

Defendants also state that Dr. Brown inferred that biology is the cause of prepubertal athletic differences because of “a peer-reviewed study demonstrating that girls as young as four years old exhibit slower reaction times than boys.” (Dkt. No. 338 (Brown Opp.) at 22 (citing Latorre-Roman 2018 (Supp. Block Decl., Ex. R)).) But Dr. Brown and Defendants both fail to mention that the cited study acknowledges that this finding was “unexpected[.]” because “a previous study showed no significant differences between boys and girls in [reaction time] for age groups 6-12 years.” (Supp. Block Decl., Ex. R at 7–8 (summarizing a variety of conflicting studies).) This is not a reliable method of surveying the scientific landscape. It is hunting and pecking for information to support a predetermined thesis without any attempt to engage with or account for contrary evidence.

**D. Dr. Brown’s Assumption That Prepubertal Transgender Girls Are The Same As Prepubertal Cisgender Boys Is Unreliable.**

Dr. Brown’s expert report assumed that prepubertal transgender girls would have the same average body composition—and, thus, the same alleged “preexisting advantages”—as prepubertal cisgender boys. But as explained in B.P.J.’s motion to exclude, in making that assumption, several of the articles cited by Dr. Brown undermine that assumption. (Dkt. No. 316 (Brown *Daubert* Mot.) at 16–17.) For example, the Klaver 2018 article cited by Dr. Brown specifically observed

that even before receiving puberty-blocking medication, a cohort of transgender girls already had a percentage of body fat that was more similar to cisgender girls than to cisgender boys. (*See* Dkt. No. 317-15 (Klaver 2018) at 258.) But Dr. Brown ignored those findings, along with other data showing physiological differences between cisgender boys and men and transgender girls and women even before the initiation of gender affirming hormones. (*Id.*)

Defendants attempt to downplay those studies by stating that they “were not population-level studies designed to establish baseline comparisons.” (Dkt. No. 338 (Brown Opp.) at 24.) But that did not stop Dr. Brown from relying on those same studies when it was convenient to support his positions. (*Compare* Dkt. No. 338 (Brown Opp.) at 24 n.30 (criticizing reliance on Van Caenegem), *with* Dkt. No. 289-30 (Brown Rep.) ¶ 124 (relying on same study).) In any event, an expert applying reliable methodology would at least acknowledge this critical information before making sweeping statements about the alleged preexisting advantages of prepubertal transgender girls. Either Dr. Brown did not read the studies carefully enough to notice those findings or he intentionally omitted them from his analysis.

**E. Dr. Brown’s Opinions About The Effects Of Puberty-Delaying Medication Are Unreliable.**

Dr. Brown asserted in his expert report that “currently available evidence says” “that cross sex hormone therapy (puberty blockers, androgen inhibitors, or cross-sex hormones)” does not neutralize the alleged advantage that transgender girls have over cisgender girls. (Dkt. No. 289-30 (Brown Rep.) at 57.) Defendants concede that insofar as Dr. Brown included “puberty blockers” in that statement, he was wrong. (*See* Dkt. No. 338 (Brown Opp.) at 25 (agreeing that data from study cited by Dr. Brown could not be used to prove retained athletic advantages exist).) Dr. Brown’s only authority for that claim was the Klaver 2018 article, but Defendants now say that

Dr. Brown “never claimed [the Klaver article] ‘proves’ retained athletic advantages follow puberty suppression or anything of the sort.” (Dkt. No. 338 (Brown Opp.) at 25.) Instead, according to Defendants, Dr. Brown cited the article “for a negative proposition—it does not provide evidence that puberty suppression erases pre-existing performance advantages.” (*Id.*)

But an article cannot be reliably cited for a negative proposition when it did not purport to even address the relevant question. The Klaver 2018 article involved a cohort of transgender women who received puberty delaying medication after already experiencing significant portions of endogenous puberty, so there is no reason to think the article could prove anything regarding the effects of puberty-delaying mediation that prevents endogenous puberty from occurring at all. (Dkt. No. 316 (Brown *Daubert* Mot.) at 18 n.2.) And the Klaver 2018 article did not even purport to measure “performance advantages.” Instead, it measured body composition and found that the transgender women in the study had body compositions that were more similar to cisgender women than to cisgender men. (*Id.* at 18.) Dr. Brown’s reliance on the Klaver 2018 study to draw conclusions about athletic performance is unreliable regardless of whether he was asserting a “negative proposition” or an affirmative one.

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The cumulative effect of all these errors, omissions, and misleading assertions renders Dr. Brown’s opinions about prepubertal children and puberty-delaying medication inherently unreliable. At each step, critical problems with Dr. Brown’s “methodology, the facts underlying the [his] opinion, [and] the link between the facts and the conclusion” render his testimony inadmissible. *Knight*, 482 F.3d at 354–55.

**II. The Court Should Exclude Dr. Brown’s Opinions Purporting To Summarize An Alleged “Consensus” Among “Responsible Voices” That Suppressing Testosterone After Endogenous Puberty Is Categorically Insufficient To Eliminate Alleged Athletic Advantages Or Ensure “Fairness.”**

The Court should strike Section V.C from Dr. Brown’s report and exclude him from offering such testimony at trial or in support of summary judgment. In those portions of his report, Dr. Brown systemically misrepresents the opinions of other researchers and policy makers to bolster his preferred policy of categorically banning transgender women from participating with other women in all sports regardless of how long they suppress circulating testosterone after endogenous puberty. (*See* Dkt. No. 316 (Brown *Daubert* Mot.) at 21–25.) In reality, the same sources cited by Dr. Brown either continued to support policies based on suppressing circulating testosterone or opposed a single across-the-board rule for all sports. (*Id.*)

Defendants attempt to excuse Dr. Brown’s misrepresentations by arguing that Dr. Brown is entitled to draw his own conclusion from the data without accepting other authors’ policy conclusions. (Dkt. No. 338 (Brown Opp.) at 12.) But Dr. Brown did not merely rely on underlying data. He sought to bolster the credibility of his views by saying they reflected a growing consensus among reliable voices. And based on his deposition testimony, Dr. Brown appears to have actually been under the misapprehension that those responsible voices actually did support a categorical ban when they, in fact, do not. (*See* Dkt. No. 289-31 (Brown Dep. Tr.) at 200:7, 212:11-23, 243:3-17.)

The Court should also strike the Conclusion section of Dr. Brown’s report, in which he states that “the “policy goals” of “fairness, safety, and full transgender inclusion . . . are irreconcilable for many or most sports.” (Dkt. No. 289-30 (Brown Rep.) at 57.) Defendants now state that “Dr. Brown does not offer an opinion on the ‘best’ or ‘fairest’ policy, as that is the role



of policymakers, not expert witnesses.” (Dkt. No. 338 (Brown Opp.) at 9.) Defendants thus concede that the policy opinions expressed in Dr. Brown’s report should, therefore, be excluded.

### **III. Dr. Brown’s Opinion Regarding The Definition Of “Biological Sex” Should Be Excluded.**

H.B. 3293’s definition of “biological sex” as “an individual’s physical form as a male or female based solely on the individual’s reproductive biology and genetics at birth” reflects an inaccurate medical or scientific understanding of the term. To support H.B. 3293’s distinction between “biological sex” and “gender identity,” Dr. Brown’s report selectively and misleadingly cited portions of Bhargava 2021 for the proposition that “a clear biological causative underpinning of gender identity remains to be demonstrated.” (*See* Dkt. No. 317-4 (Bhargava 2021) at 8.) But the article goes on to explain that, while the precise causative factor is unknown, “there is ample but incomplete evidence for biological substrates—neuroanatomic, genetic, and hormonal—for gender orientation.” (*Id.* at 227.) In their opposition to B.P.J.’s motion to exclude, Defendants do not provide *any* defense of Dr. Brown’s testimony regarding the biological underpinnings of gender identity. His testimony on that topic should be excluded in its entirety.

To support H.B. 3293’s exclusive focus on “reproductive biology and genetics at birth,” Dr. Brown’s expert report also selectively and misleadingly cited to portions of Bhargava 2021 discussing the role of chromosomes in the development of sex while ignoring the article’s extensive discussion of the role of hormones and other biological determinants. (*See* Dkt. No. 316 (Brown *Daubert* Mot.) at 7–8.) By contrast, Dr. Brown’s recent professional blog post acknowledges the critical role of androgen exposure in sexual differentiation and acknowledges that his brief discussion “fail[ ]s to cover the myriad of complex interactions of genes, primordial stem cells, and hormones that regulate sex development, and the possible differences and disorders

that can occur.” (Dkt. No. 343-1 (Defs.’ *Daubert* Resp. App.) at 71 (typos corrected).) Once again, Dr. Brown’s blog post demonstrates that his report was drafted as a one-sided advocacy piece that falls short of what would be required in a professional setting.

Defendants now seek to defend Dr. Brown’s testimony by asserting that “[t]he purpose of this section [of Dr. Brown’s report] is simply to introduce the concept, as it is common in exercise science to study sex-based differences in various aspects of exercise physiology and performance.” (Dkt. No. 338 (Brown Opp.) at 4.) Defendants further assert that Dr. Brown’s discussion of chromosomes and the definition of “biological sex” merely reflect what is true “in the overwhelming majority of cases.” (*Id.* at 6.) And Defendants state that Dr. Brown is offering no opinions with respect to people with differences of sexual development (DSDs) including people with XY chromosomes who do not respond to testosterone. (*Id.* at 6 n.8.)

If Dr. Brown’s testimony is narrowed down to these parameters—limited only to describing what is true for cisgender people for whom all the biological indicators of sex are aligned in the same direction—then the testimony is irrelevant to the issues in this case. The only function the legislature’s decision to specifically define “biological sex” in H.B. 3293 as limited “solely to reproductive biology and genetics at birth,” is to exclude from that definition people whose hormonal sex-based characteristics and gender identity depart from the statutory definition. (*See* Dkt. No. 331 (MSJ Opp.) at 40.) Because Dr. Brown cannot offer an expert opinion on the biological components of sex for girls who are transgender or have intersex characteristics, his testimony is not helpful, reliable, or relevant under Rule 702.

## CONCLUSION

For the foregoing reasons, B.P.J.'s motion to exclude the testimony of Gregory A. Brown should be granted.

Dated: June 2, 2022

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Respectfully submitted,  
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IN THE UNITED STATES DISTRICT COURT  
FOR THE SOUTHERN DISTRICT OF WEST VIRGINIA  
CHARLESTON DIVISION

B.P.J. by her next friend and mother, HEATHER JACKSON,

*Plaintiff,*

v.

WEST VIRGINIA STATE BOARD OF EDUCATION, HARRISON COUNTY BOARD OF EDUCATION, WEST VIRGINIA SECONDARY SCHOOL ACTIVITIES COMMISSION, W. CLAYTON BURCH in his official capacity as State Superintendent, DORA STUTLER in her official capacity as Harrison County Superintendent, and THE STATE OF WEST VIRGINIA,

*Defendants,*

and

LAINY ARMISTEAD,

*Defendant-Intervenor.*

Civil Action No. 2:21-cv-00316

Hon. Joseph R. Goodwin

**CERTIFICATE OF SERVICE**

I, Loree Stark, do hereby certify that on this 2nd day of June, 2022, I electronically filed a true and exact copy of *Plaintiff's Reply Memorandum of Law in Support of Motion to Exclude the Expert Testimony of Gregory A. Brown* with the Clerk of Court and all parties using the CM/ECF System.

/s/ Loree Stark

Loree Stark

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